

## CHAPTER 2

# WOMEN'S HEALTH AND MEDICAL TECHNOLOGIES – EMERGING CHALLENGES

### 2.1. Introduction

The rapidly advancing technology in the last 20<sup>th</sup> century has brought sea-saw changes in the world. Technology has brought humankind into the new era of revolution in each and every field. The standard of life, quality of life and the meaning of life have changed because of the technology. Talking in this context, technology has also advanced in the field of medical facilities. Today, there are latest medical technologies to help human being at the stage of illness. There are artificial reproductive technologies as well to help human being in the process of reproduction.

In the past, having children was seen as a blessing and those unable to have them were considered as unlucky. However, the perspective has changed today and now being parent is a right rather than a blessing and those unable to have own child is called as infertile needing medical help. This right is called as reproductive right and it include the right to life, liberty and the pursuit of happiness.<sup>1</sup>

In this age of medical technology, infertility<sup>2</sup> is considered as disease, a physical illness that requires medical treatment. It is advocated by human rights activist that everyone has right to bear children by any possible means.

Earlier, childless couples were forced to live in the phase of childlessness. They were reluctant to adopt child because of complex procedure and also because there is natural desire to see resemblance in one's own children which is not possible in adoption, but now there is answer to these problems through Assisted Reproductive Technology (ART).

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<sup>1</sup> Adrienne Asch at Wellesley COLLEGE AT Interview on 12<sup>th</sup> Feb 2005, [www.reproductiverights.org](http://www.reproductiverights.org)

<sup>2</sup> Infertility here means failure to conceive after a year of regular intercourse without contraceptive.

Reproductive Technology not only helps infertile couple but it also helps the single adult and homosexual couples to have children. Single adult may not be infertile but they are unable to have children because they have no partners. In this area, medical technology has brought a ground-breaking change by responding in favour of couples who want to have children by separating reproduction from sexual intercourse and marriage.<sup>3</sup>

The phenomenal changes brought by separating reproduction from sexual intercourse and marriage have change the face of modern reproductive process. At one hand, it provides a solution to single adult or homosexual couples who want to have children even without indulging in sexual involvement or a long term commitment. On the other hand, it challenges old concept of family where third parties who are not members of the family are introduced into the procreation process.

The advantage brought to women by reproductive technology is the sexual freedom and control over their bodies through various measures, such as contraceptive, injections, abortion etc. It helps women to avoid conception even after heterosexual intercourse. But at the same time, these measures risk the health of women and may turn out to be disadvantageous to them. These methods may result into some ill-effect such as- menstruation disturbance, headache or weight gain. Although these methods help women to achieve their freedom but sometimes it affects their health which may spoil the quality of life they are living.

The term 'reproduction' has been defined by the *Oxford English Dictionary* as 'the action or process of forming or creating or bringing into existence again'. Generally, the reproduction means the processes relating to conception, pregnancy and child birth.<sup>4</sup>

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<sup>3</sup> [www.reproductiverights.org](http://www.reproductiverights.org)

<sup>4</sup> Jyotsna Agnihotri Gupta, *New Reproductive Technologies, Women's Health and Autonomy* 14 (1<sup>st</sup> Edition 2000).

Likewise, reproductive technologies are made to assist or intervene into the process of reproduction through various ways, like-

- a) The prevention of conception and birth, e.g.; contraception, abortion etc.
- b) Assisting reproduction or stimulating conception, e.g.; artificial insemination, in-vitro fertilization etc.
- c) For pre-natal diagnosis to detect genetic or chromosomal disorders or sex of the foetus also eg; ultrasound scan, amniocentesis, chorionic villi biopsy etc.

Procreation is a natural desire of every human being. The development technology has facilitated people to restrict and control birth and at the same time it also helps fulfill the dream of childless couples to become parents<sup>5</sup>.

The new reproductive technologies aim at improving the health and genetic problems of foetus. However, it has its implications on the health of women and their autonomy. The use of these technologies has brought many complex issues before the society as it touches not only women but the whole society.<sup>6</sup>

With the introduction of reproductive technologies it is possible to improve the health of women as well as that of the foetus. But more use of these technologies might bring adverse effect on the health and well-being of women those who have sex without reproduction. The development of these technologies has created many possibilities. Such technologies help women to exercise their freedom of choice.

At the same time, these technologies can restrain women's rights and choices in reproduction sometimes. There are apprehensions that these reproductive technologies may be used against the main purpose for which they have been intended. There is apprehension that these technologies may be used for commercial purpose or for some other purposes which is not intended.

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<sup>5</sup> Kusum "Artificial Insemination and the Law" 19:3 Journal of the Indian Law Institute 283 (1977).

<sup>6</sup> *Supranote 4* at pg. 23.

How much society is ready to use these technologies is perhaps the biggest question? In the perspective of different socio-cultural climate and different health measures, these technologies are prone to more misuses than usage. For instance, contraceptive is for the management of fertility which is actually used to serve the purpose of population control. Similarly, pre-natal diagnostic technique which is meant to detect genetic or other abnormalities is now highly used to detect the sex of the foetus.<sup>7</sup>

## 2.2. Reproductive Methods and Technologies

Medical technology has advanced various methods either to prevent birth or to give birth such as barrier methods includes condoms, diaphragm, etc.; hormonal methods such as oral pills, injectables, etc.; immunological methods such as anti-fertility methods ;terminal methods such as sterilization; methods for pregnancy termination like abortion; and also methods to treat infertility –in-vitro fertilization, etc which are discussed below:-

### 2.2.1. Contraceptives:

Contraception is the means of controlling or preventing conception or birth control. The *Oxford English Dictionary* defines contraception as a 'practice or method of preventing or planning conception. It also defines contraceptive as a device or drug intended to prevent conception.<sup>8</sup> Therefore, contraceptives are the methods of preventing or planning conception. The development of contraceptive has brought reproductive revolution during 1960s and 1970s

The most commonly accepted method of preventing birth or conception is the use of contraceptives. These contraceptives act as a barrier and thus prevent the spermatozoa from meeting the egg. The types of barrier contraceptives include the condom, the diaphragm, the femidom (female condom) and chemical barriers.

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<sup>7</sup> Jyotsna Agnihotri Gupta, *New Reproductive Technologies Women's Health and Autonomy* 52 (1<sup>st</sup> Edition 2000).

<sup>8</sup> M. Adekunle Owoade "The Legal Implication of Contraception in contemporary Nigeria" 14 Indian Socio-Legal Journal 67 (1988).

These devices work differently in women's body though, serve the same purpose like; *diaphragm* is a cup-like device which fits on the cervix (the mouth of the uterus) is often filled with spermicidal jelly. It must be put in place before sexual contact and left there for at least six hours after intercourse. Similarly *femidom* is a loose fitting polyurethane sheath with a flexible ring at both ends. It, therefore, covers both the cervix and vaginal walls. These methods are especially important as they serve as barriers to HIV and STDs transmission<sup>9</sup>. *Intra Uterine Devices* (IUDs) are made of copper, plastic or even polyurethane (some even contain hormones). It is inserted into the uterus of a woman; common among them are *copper-T* and *Lippes Loop*.<sup>10</sup>

These devices should be inserted only after proper evaluation of women genital tract. These devices sometimes cause infection leading to pelvic inflammatory diseases with painful menstruation, blockage of fallopian tubes, resulting in sterility or tubal pregnancy and even peritonitis leading to death. In addition to these, other side effects are backache, discomfort, increased bleeding etc.<sup>11</sup>

There is a need for a medical skill and training to insert *Intra Uterine Devices*. There are number of cases where the procedure fails and there is an increased rate of complications as a result of unhygienic and unsafe practices. There are incidence of ectopic pregnancy and catastrophic illness with high mortality (even where all the facilities are available). The condition is even worse in rural areas. The patients wear them even without having knowledge of what it is. Several empirical accounts show refusal to remove implants when women demands for it.<sup>12</sup>

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<sup>9</sup> Gwendoline M. Alphoso "Preventing Motherhood: Medico-Legal and Ethical Dilemmas in Contraception" .5 Law and Medicine 5 (1999).

<sup>10</sup> *ibid* at pg. 6.

<sup>11</sup> *ibid*

<sup>12</sup> *ibid* at pg 10.

This method is popular among women seeking long term protection and who has no time to remember to take pills daily or to use a barrier method every time they have intercourse. It has also another advantage that women can use it without the knowledge of the family members as long as they have no health related problems because of its use.<sup>13</sup>

*Injectable contraceptive* is injected into a woman's body when she is not pregnant, her body will initiate its defense mechanism against human *Chorionic Gonadotrophin* (hormone). At the time when fertilization does take place, later, it will serve to prevent implantation of the fertilized egg on the uterine lining. As research shows that this method results in immuno- complex diseases that might even risk the HIV, Anti- Fertility Vaccine- Anti- HCG (Anti Human Chorionic Gonadotrophin)

*Injectable Contraceptives* like *Net- en* (200 mg) is used once every two months and *Depo- Provera* (150 mg) once every three months. It acted at several levels in the body by preventing the maturation, by forming a barrier at the mouth of uterus to prevent entry of the sperm, by slowing down the normal velocity of ovum transport in the fallopian tube etc.

It has been found that injectable contraceptive is more useful for those women who are less educated as they are likely to forget to take the pill regularly. Injectable contraceptives are long acting steroidal preparations which are used by way of injection. This method is also popular among working class women. It is broadly used in about 90 countries around the world approximately by about four million women.<sup>14</sup>

The above said contraceptive has the lowest failure rate. It depends upon the timing of the first and repeat injections. Though, it is also not free from side effects. Some of the ill-effects of such injectables are- bleeding disorders, demineralization of the bones, onset of early menopause, effect on future fertility, effects on the higher brain centers, cancer, severe headaches, nausea, weight gain or loss, possible carcinogenicity etc. If

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<sup>13</sup> Jyotsna Agnihotri Gupta, *New Reproductive Technologies, Women's Health and Autonomy* 265 (1<sup>st</sup> edition 2000).

<sup>14</sup> *Supranote* 13 at pg. 248.

women with breast feeding child is using such contraceptive than they are exposing their infants to small quantities of the drugs through breast milk which has every chance of causing side effect to the child also like, weakness, dizziness, headaches, weight changes etc.<sup>15</sup>

The most common side effect is irregular heavy uterine bleeding and after prolonged use amenorrhoea. A study conducted on 26, 00 women shows that nearly 68 per cent women has discontinued the use because of the above discussed side effects. Mainly, excessive bleeding in women who are undernourished and already anaemic is a serious problem. In the view of medical researchers amenorrhoea is not a major problem. After discontinuing of this the fertility will return slowly and that is why many clinics has limits the use of injectables to women who are already a mother. The use of *Depo Provera* has no risk of cancer of the cervix, ovary or liver, and that they are actually protected against endometrial cancer as held in WHO study.<sup>16</sup>

In India, injectable is now available and commonly used is NET-EN. It is true that women's health organization has shown their reluctance towards unethical use of these contraceptives. There is concern about the side effects of such injectables. There is no provision for the record of its users and the side effects to those users. Primary Health Centers in India has no facilities for such large scale investigation and maintenance of records which is the only source of health service in remote area (particularly).<sup>17</sup>

A study carried out by Indian Council of Medical Research (ICMR) has shown that almost 50 percent of women who had developed amen-orrhea failed to conceive even one year after discontinuing with *Net-en. Depo-provera* is known to increase the risk of facture by 10-15 percent.<sup>18</sup>

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<sup>15</sup> *Supranote* 13 at pg. 249.

<sup>16</sup> *Supranote* 13 at pg.249.

<sup>17</sup> *Supranote* 13 at 249.

<sup>18</sup> Gwendoline M.Alphoso "*Preventing Motherhood: Medico-Legal and Ethical Dilemmas in Contraception*" .5 *Law and Medicine* 6 (1999).

*Oral Contraceptive pills* when taken, their hormones (Estrogen and progesterone) contained in them are absorbed in the blood stream and prevent formation of egg itself, in the ovary. When it is in the blood stream, they are also able to affect every part of the body thereby.<sup>19</sup>

The birth control pill has become familiar in India with the advertisements in huge manner. These pills are provided free of cost in government hospitals. Some pills such as MALA-D are sold in marginal price in market making it affordable for every class of people. However, advertisement shown only reflects the beneficial effects of the pills without showing any concern on its side effects just to draw attention to the product.

There is a need to take greater care while adopting contraceptive pills as these are taken during the active sexual life of the couple. There is a possibility of the pill to affect the progeny. The alteration of the genetic composition of the ovum which could lead to the birth of children with chromosomal anomalies such as Down's syndrome or the drug passing through the placenta and directly affecting the foetus in uterus. Those drugs could also pass through breast milk and affect the breast fed infant if the woman has breast feeding infant.

There is also barrier method i.e. female condom which is not so popular. This method was said as cumbersome and noisy; some feels that it takes away the spontaneity of sexual interaction. But for those who are with STDs and the AIDS it is useful. It is also useful for those women whose partner is not willing to use condom.<sup>20</sup>

Besides, above mentioned contraceptive measures, there are recently developed *morning - after pills*. These drugs are now easily available and freely advertised in India also. It is to be taken within 72 hours of sexual intercourse which ensures that any fertilized ovum will not implant in the womb.<sup>21</sup>

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<sup>19</sup> *Supranote 18.*

<sup>20</sup> Jyotsna Agnihotri Gupta, *New Reproductive Technologies, Women's Health and Autonomy* 239 (1<sup>st</sup> Edition 2000).

<sup>21</sup> P.M.Bakshi "Contraception and Abortion: Some Legal Issues" 11 *The Lawyers Collective* 22 (1996).

These emergency contraceptive has been called “the best kept contraceptive secret”. Many women are unaware of the availability of such contraceptive in the past. But, today it is known item to every one. In the developed countries, this contraceptive has often been used for help to rape victims. Nevertheless, in a country with weak health infrastructure these contraceptives can be misused. They are available without necessary information, and thus may be taken in inappropriate portion or too late after unprotected intercourse which may increase the adverse effect.<sup>22</sup>

The advantages and the disadvantages of each of these methods would be an issue of alarm to medical experts who give advice at the various medical and family planning clinics. In the path of contraceptive technology and research on reproductive and child health, some excellent research has taken place and new products have already arrived at the market. Any strategy adopted has to be within the people’s health mandate, only then can new reproductive technologies such as contraceptive technology will produce the desired results.

There has been increase in the use of contraceptive by women as now the reproductive processes have been scientifically understood by women and men. There has been growing concern of the medical profession, pharmaceutical industry and organizations on the use of these methods and thus, they are actively involved in its campaign.<sup>23</sup>

### **2.2.2. Abortion:**

Abortion is the termination of pregnancy before the foetus is sufficiently developed to survive independently. In India, under the Medical Termination of Pregnancy Act, 1971(MTPA), the termination is allowed up to 20 weeks of pregnancy. It permits termination in such situation where there is risk to mother’s life or grave injury to her physical or mental health or if child born will suffer from such physical or mental abnormalities as to be seriously handicapped.<sup>24</sup>

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<sup>22</sup> *Supranote 20* at pg 287.

<sup>23</sup> *Supranote20* at 240.

<sup>24</sup> Ved Kumari “*Fertility Revolution and Changing Concept of Family and Identity*” XXV Delhi Law Review 260 (2003).

Abortion is totally illegal or severely restricted by law in most of the countries. Whether abortion should be permitted or not? As to what extent it should be permitted? These are debatable questions where there is no settled rule.<sup>25</sup> However, in most of the countries including India abortion is permitted under certain circumstances:

- a) To preserve the life or physical or mental well-being of the mother.
- b) To prevent the completion of a pregnancy that has resulted from rape.
- c) To prevent the birth of a child with serious deformity, mental deficiency, or
- d) To prevent pregnancy resulted from failure of birth control methods.

In India, abortion has to be carried out as per the terms of Medical Termination of Pregnancy Act, 1971 (MTPA) where legal abortion is permissible under above mentioned conditions till 20<sup>th</sup> weeks of pregnancy. However, up to 12 weeks of pregnancy only one doctor may form opinion on the termination of pregnancy but after 12 weeks and up to 20<sup>th</sup> weeks, the decision of abortion should be taken with opinion of two doctors.<sup>26</sup>

Additionally, the Act provides that all operations must be performed in approved premises. But, there is an exception to this general rule that if the termination of pregnancy is necessary to save the mother's life than operation can be performed at any place whether approved or not.<sup>27</sup>

Further, termination of pregnancy is justified only if it is done with the consent of the pregnant woman. If she is a minor or a lunatic than consent of the husband of a married woman is not necessary.<sup>28</sup> However, the consent of father will be taken in case of pregnancy of minor girl where she decides to terminate her pregnancy. But abortion cannot be forced upon a minor who wants to complete her pregnancy and ready to bear

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<sup>25</sup> *Supranote 24.*

<sup>26</sup> Justice Palok Basu, *Law Relating To Protection of Human Rights* 127 (1<sup>st</sup> Edition 2002).

<sup>27</sup> *ibid* at pg128.

<sup>28</sup> *ibid*

her child. The Medical Termination of Pregnancy, Act provides that father's consent is needed only when minor opt for termination not when she chooses to give birth.

The study shows that some 50 to 60 million abortions occurs per year through out the world, up to half of them illegal and dangerous, killing about half a million women per year. Besides, atleast 500 million women around the world are placed at the risk of repeated pregnancies with serious health problems.<sup>29</sup>

Abortion is said to be legal when done under Medical Termination of Pregnancy, Act in India. However, the truth is that abortion is carried out under unsafe or undesirable condition. Many women fall under recourse to unsafe abortion at the hands of untrained persons which give rise to high morality rate. Women's health greatly affects due to unsafe abortion, such as uterine perforation, chronic pelvic pain or pelvic inflammatory disease.

Abortion is the most commonly used by women all over the world to terminate pregnancy, either as a result of failure of contraceptives or as a way out of an unwanted pregnancy. Even though abortion is legal in India, yet the incidence of illegal abortion is alarming. As many as 10 times illegal abortions are carried out here, and atleast 80 per cent of women are admitted to the hospitals as a reason of some complications caused due to abortion by unqualified doctors. The most important concern relating to abortion on the context of reproductive right is how to ensure access to safe and effective legal abortion facilities to women. There are already data to show that some 25-50 percent of maternal deaths in developing countries occur from unsafe abortions.<sup>30</sup>

### **2.2.3. Sex Selection Test:**

The scientific development in medical field has made the convenient tool for portraying the quality and status of the foetus in the womb. It helps to see the condition of foetus whether there is any abnormality or not especially in such cases where there is hereditary disease in the family. But at the same time, in a country like India, it has

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<sup>29</sup> Subhash Chandra Singh "*Right to Abortion: A New Agenda*" AIR Journal 129 (1997).

<sup>30</sup> *ibid* at pg.134.

opened the way for female foeticide eliminating female foetus after identifying the 'foetuses'.<sup>31</sup>

Ultrasound scans, amniocentesis and chorionic villi biopsy are the sex selective techniques which are used to detect genetic disorders and abnormalities during the pregnancy of women. *Amniocentesis* (Amnion; membrane, kentesis; pricking) was brought in India in 1975. It is a diagnostic procedure performed by inserting a hollow needle through the abdominal wall into the uterus and withdrawing a small amount of fluid from the sac surrounding the foetus.

The test is to detect various kinds of disorders such as- chromosomal disorder, inherited metabolic disorder and so on. The test may also be performed to identify suspected problems or infections late in the pregnancy. It can also determine lung maturity. Amniocentesis is also used in high risk pregnancies, especially in cases where women conceived late (over 35 years of age).<sup>32</sup>

To perform the test about 10 mls of amniotic fluid is removed from the woman's body. The test is done between 15-18 weeks gestation and there is little chances of harming the foetus or causing the miscarriage. This technique can also be used to identify the sex of the foetus. Now, there is a trend of sex selective abortion after determining whether the foetus is male or female with the help of these tests. After determination of the sex of the foetus if it happen to be female foetus there is every chance of abortion as there is huge son preference prevail in India.

Similarly, *chorionic villi biopsy*<sup>33</sup> is another such method which involves the removal of the elongated cells (villi) of the chorion (tissue surrounding the foetus), through the cervix. This tissue is than tested for determination of sex. This new technology helps to determine sex between 6 to 13 weeks of pregnancy. Here, abortion can be done in the first trimester itself. This technique is proved to be less painful and

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<sup>31</sup> Foetus refers to the period from the 57<sup>th</sup> day of pregnancy till the end at birth.

<sup>32</sup> Ashok K. Jain ,*The Saga of Female Foeticide in India* 110-111 (1<sup>st</sup> Edition 2006).

<sup>33</sup> *ibid* at pg 59.

more accurate than amniocentesis and it risk less bleeding and spontaneous abortion as well.

The cheap technique of detecting foetus is *ultrasound*. It can identify up to 50 percent of abnormalities of the foetus. This technique uses inaudible sound waves to get a visual image of the foetus on a screen. It also determines the foetal position or abnormalities and also determines sex of a foetus. This ultrasound prediction is 95-96 percent accurate at the advance stage of pregnancy. This machine allows the doctor to visit from village to village and if the foetus is female a second trimester even a third trimester abortion is also carried out especially in a country like India where there is strong son preference.<sup>34</sup>

These new and sophisticated reproductive technologies have raised the problem of female foeticide in India. There are some technologies such as *karyo-typing*, which analyse abnormalities of the chromosomes and reveals the sex of the foetus. This method takes 11 days and costs around Rs. 5000 (approx). *Fluorescent in sites hybridization*, which is 95 percent accurate, takes two days and costs Rs. 10,000(approx); *comparative genomic hybridization* requires two days. These and lot more available at market which can be used to detect the abnormalities in the foetus as well as the sex of the foetus within 5 – 6 weeks of pregnancy, making abortion less serious as compared to methods like amniocentesis that can be done only after 14 weeks of pregnancy. At that time, abortion not only becomes medically dangerous for the mother but also involves the legal and moral questions.<sup>35</sup>

There are some new techniques from which sex selection of the foetus can be done pre-natal even before conception. There are two commonly used pre-conceptual sex selection i.e. *Ericsson's* method and **Pre-Implantation Genetic Diagnosis (P.G.D)**. Both these techniques are used to identify and discard the female embryo<sup>36</sup>.

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<sup>34</sup> *Supranote 32*

<sup>35</sup> *Supranote 32* at pg 60- 61.

<sup>36</sup> Ashok K. Jain ,*The Saga of Female Foeticide in India* 60 (1<sup>st</sup> Edition 2006).

In the *Ericsson's* method only XY sperm which can produce male child is used for artificial insemination. In this method, first a semen sample is diluted and then centrifuged, X and Y bearing sperms are separated when placed in a chemical solution. The faster moving Y- sperms penetrate the solution's cleanser bottom layers, which are collected and centrifuged. The process is repeated and the Y concentrate is collected for artificial insemination. This method is found 70 percent successful producing a male child and is very expensive.<sup>37</sup>

Another per-conception method is called *PGD* which means *Pre- Implantation Genetic Diagnosis* which was developed in the West to sort out embryos with inherited diseases like haemophilia. Under it, firstly unfertilized eggs will be collected from the female ovaries. They are fertilized outside the women's body in a petridish with active sperms. The resulting embryos are then nurtured in an incubator. After 72 hours each eight-cell embryo is biopsied by a micromanipulator, which includes glass pipettes and a powerful microscope. While one of the pipettes holds the embryo in place, the second extricates a single cell from the little clump. The extricated cell is taken to a tiny FISH (Fluorescent *in situ* hybridization) laboratory and transferred to a slide under a stereo Zoom Microscope, specially designed for single-cell analysis.<sup>38</sup>

The genetic blueprint of the cell is to be studied to determine the sex of the 'embryo'.<sup>39</sup> Chemical strains are used to single out the X and Y chromosomes from the intricate genetic master plan. It is than 'bathed' to wash away unwanted cellular debris, which could interfere with the analysis. The freshly scrubbed X chromosome (female) shows up as a pink dot while the Y chromosome (male) shows up as a bright green speck. The male embryos which are always fewer in number are than implanted in women's uterus and the female embryos are simply discarded.<sup>40</sup>

These above discussed techniques of detecting genetic abnormalities, metabolic disorders, and chromosomal abnormalities or certain congenital malformations or sex

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<sup>37</sup> Ashok K. Jain, *The Saga of Female Foeticide in India* 60 (1<sup>st</sup> Edition 2006).

<sup>38</sup> *ibid* at pg.61.

<sup>39</sup> Embryo refers to the developing human organism formed after fertilization till the end of 56 days.

<sup>40</sup> T.K. Rajalakshmi "Sex Selection and Questions of Law" Oct 27 Frontline 103 (2000).

linked disorder is presently highly used for sex selection of the foetus, leading to killing of female foetus commonly known as female foeticide.

It is estimated that the number of female per thousand male is 990. Western Europe has a figure of 1,064 females per thousand and Africa 1,015, Asia as a whole has less number of female than male. In India, there has been a steady decline of the sex ratio over the 20<sup>th</sup> century. This decline in the child sex ratio has been found in Himachal Pradesh (897), Punjab (793), Chandigarh (845), Haryana (820) and Delhi (865). In all these states, the number of female children per thousand male children in the 0-6 years age group, declined by more than 50 between 1991 and 2001. A 2003 report also shows the decline in the number of girls.<sup>41</sup>

In a state like Punjab or Haryana, ultrasound machines are increasingly used to determine the sex of an unborn child. The doctors and quacks hit upon this money minting racket and had even started carrying these foetus killing machines right into the house of the people. There is also a threat to the decline in sex ratio which is already 888 females against 1000 males<sup>42</sup>.

There is always neglecting and discriminating attitude towards girls in India and as found in several studies female mortality is always high. In recent past, there has been rapid spread of ultrasound and amniocentesis tests for sex determination in most of the parts of the country, followed by sex selective abortions which have become so easy in India.<sup>43</sup>

The universal desire for son than daughter is apparent from the sex ratio of live births where there is decline in female sex ratio. This could not have been possible to this extent, if there would not be widespread use of pre-birth sex determination tests. There is pressure on wives or daughters-in-law from husband or in-laws to go for sex-

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<sup>41</sup>Mohan Rao, *The Unheard Scream-Reproductive Health and Women's Lives in India* 260 (1<sup>st</sup> Edition 2004)

<sup>42</sup>Law Teller, June 1994 Flash Points 2.32

<sup>43</sup>Leela Visaria "Deficit of Girls in India" in Tulsi Patel (ed) *Sex Selective Abortion in India* 69 (2007).

determination tests during pregnancy and further abortion in case if female foetus found. Many times women themselves wanted to get ride of female foetus.

The Pre-Conception and Pre-Natal Diagnostic Techniques (Prohibition of Sex Selection) Act, 1994 provides for the regulation of the use of pre-natal diagnostic tests for certain purposes. Its main objective is to prevent misuse of such techniques for the purpose of sex determination leading to female foeticide.<sup>44</sup>

.Though, Pre-Natal Diagnostic Technique, Act has been enforced but it is ineffective as there will be hardly any evidence to show that foetus has been removed for being female. The Medical Termination of Pregnancy Act provides various grounds when abortion is allowed to women. The reasons for female foeticide are many, such as-

- (i) Women themselves wanted to remove it sometimes; or
- (ii) There is pressure from the family for its removal; or
- (iii) Medical Termination of Pregnancy, Act can be used as an instrument to prove legal abortion on any of the ground as provided under the Act.; or
- (iv) Medical practitioners will not give evidence against themselves; or
- (v) There will be no evidence to prove the act of female foeticide through sex selective abortion.

Though, technology alone is not responsible for female foeticide in India. There are various socio-cultural reasons for this practice such as –dowry system, prospect of migration etc. Whatever, the reason for female foeticide but it cannot be denied that increasing number of female foeticide is an alarm for civilization collapse.

The skewed sex ratio in the 0-6 years age group must surely have a negative impact on the overall sex ratio. Perhaps it has already created a tumble effect on the population over a period of time that will now lead to a diminishing sex ratio for the entire country.

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<sup>44</sup> Tulsi Patel "Foeticide, Family Planning & State –Society Intersection" in Tulsi Patel (ed) *Sex Selective Abortion* 322 (2007)

This declining ratio will certainly create an imbalance in the society within this age group and it will be difficult to remove it in the long run.<sup>45</sup>

#### 2.2.4. Artificial Insemination:

Artificial insemination is the form of assisted reproductive technique which is designed to overcome the problem of infertility. In this process, a childless couple will be advised to collect the sperm from a man and injecting it into uterus of a woman for the purpose of conception<sup>46</sup>. Here, sperm is collected either from the husband or a donor. Sometimes, there is use of mixed semen from husband and donor which is referred as combined artificial insemination (CAI).

This assisted reproductive technique has been practiced since 19<sup>th</sup> century. This practice has become so common that it can be performed without the help of the doctor or fertility specialist also. The unique feature of this technique is that it not only cures female infertility but male infertility as well.

In this process, a woman visits the physician when she is about to ovulate. The physician introduces sperm into her vagina using a syringe that injects the sperm near the cervical cap that the woman will wear for next four to six hours to achieve fertilization of egg<sup>47</sup>.

The U.S. Congressional Office of Technology Assessment in 1988 provides that more than 172,000 women resorted to artificial insemination in 1987 and about 65,000 babies that year were born from this method. It is concerned with the transmission of infectious and hereditary diseases.<sup>48</sup>

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<sup>45</sup> J.K.Banthia "Declining sex ratio:a national emergency" in Shruti Pandey, Abhijit Das, Shrivanti Reddy, and Binamrata Rani (eds.) *Coercion versus Empowerment* 41 (2006).

<sup>46</sup> Gosden Roger, *Designing Babies; The Brave New World of Reproductive Technology* 23 (1<sup>st</sup> Edition 1999).

<sup>47</sup> Warren Freedman, *Legal Issues in Biotechnology and Human Reproduction* 27 (1<sup>st</sup> Edition 1991).

<sup>48</sup> *ibid* at pg 24.

In Artificial Insemination there are three sources from which the seminal fluid can be drawn:

- 1) Artificial Insemination donor or Artificial Insemination Heterologous (AID) where the sperm is donated by a third person or donor.
- 2) Artificial Insemination Homologous (AIH) where the sperm is donated by the husband.
- 3) Combined Artificial Insemination (CAT) where the sperm of the donor and the sperm of the husband are mixed together.

The most famous method is Artificial Insemination Donor (AID) which is legalized in many states such as California, Washington, New York etc (about 29 States) and which makes the child born to the woman, the legitimate child of her and her husband.<sup>49</sup>

AID is most useful where the wife is fertile and the husband is sterile or has cacogenic hereditary characters. Biologically, the child born out of AID is not related to the husband and, therefore, AID can be threatened with the development of the law.

In most countries AID is not easily available to all women. Though, very little expertise is required, the medical professionals maintain strict control over the procedure. Therefore, often lesbian women or single women face difficulty opting for it. It is common that women do not want that their husband should be told about their lack of manhood or rather their infertility. Women come to such clinics with their mother without the knowledge of their husbands and in-laws, because if they fail to produce child they might be deserted by their husband.<sup>50</sup>

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<sup>49</sup> *Supranote 48 at pg.29.*

<sup>50</sup> Jyotsna Agnihotri Gupta, *New Reproductive Technologies, Women's Health and Autonomy* 358 (1<sup>st</sup> Edition 2000).

### 2.2.5. In-Vivo Fertilization:

The donor woman is artificially inseminated with the sperm from a husband of an infertile woman. After five or six days, the embryo is removed from the donor woman in a nonsurgical procedure and the embryo is transferred into the uterus of the infertile woman.<sup>51</sup>

This method has been used in situation where there is low sperm count of the male or oligospermia, the low motility and penetrability of the sperm and the low compatibility with cervical mucus. This procedure has not achieved popularity due to the reason of its complex procedure.<sup>52</sup>

### 2.2.6. In-Vitro Fertilization (IVF):

In vitro fertilization means "fertilization in a glass". On July 25<sup>h</sup> 1978, a girl named *Louise Brown* was born. Astonishment on her birth by the world is because she was the first test tube baby. Her birth was the miracle of science. Louise was conceived by a process called in-vitro fertilization. This involves the fertilization of an egg outside the body, either by subjecting a store of eggs to a population of sperm in a Petri dish or by manually inserting a single sperm into a mature, unfertilized egg, a process called *intracytoplasmic sperm injection (ICSI)*.<sup>53</sup>

In this process, procreation is done in three stages. At first, fertility drugs will be given for several days from 3-7 days of a woman's menstrual cycle for the purpose of multiple ovulation. Moreover, one or more follicles containing eggs develop after the drug treatment. Through laparoscopic surgery the oocytes (mature eggs) or ova (mature egg) are removed. After removal of the oocytes, they are first placed in a specially prepared culture and incubated to develop into mature eggs. Secondly, in a Petri dish the ova are incubated with the sperm. To endow the sperm with the ability to pierce the egg's cellular wall a capacitating chemical is used. Thirdly, the resulting zygote when developed into 4-8 cell stage, it is transferred to the woman's uterine

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<sup>51</sup> Warren Freedman, *Legal Issues in Biotechnology and Human Reproduction* 3 (1<sup>st</sup> Edition 1991).

<sup>52</sup> *ibid*

<sup>53</sup> Samson O. Koyonda "Assisted Reproductive Technologies in Nigeria: Placing the Law above Medical Technology" 43:1 *Journal of Indian Law Institute* 73 (2001).

cavity in the hope to implant it. In securing successful implantation, the hormonal preparation of the woman and timing of the transfer are crucial. Pregnancy can be detected 10-14 days later, if it is successfully implanted.<sup>54</sup>

Another process of In-Vitro Fertilization (IVF) is called *Cryopreservation* where there is a cooling and dehydrating of an embryo to allow it to be stored for a long period of time. This process allows a woman undergoing IVF procedure to use possibly all her retrieved and fertilized eggs. This process reduces the number of times a woman may have to undergo egg retrieval if the IVF first attempt is not successful in inducing pregnancy.<sup>55</sup>

In-vitro fertilization is a humanitarian milestone for those families who are unable to have children by natural process. This technique bypasses damaged or blocked fallopian tubes and overcome problems of ovulation and certain genetic disorders, as well as low sperm count.<sup>56</sup>

This method is comparatively more successful as seen from the report from Europe, Australia, and United States etc. New ultrasound directed non surgical aspiration methods make IVF an outpatient procedure. Even genetic screening can be performed on in- vitro embryo, one or more cells can be removed and screened for purpose, such as- Down's syndrome and chromosomal testing can make possible treating of an embryo with a defect.<sup>57</sup>

However, there are disadvantages also of In-Vitro Fertilization (IVF), like only one preovulatory follicle is available for aspiration of an egg, protracted monitoring is required to detect the hormonal surge, and the overall pregnancy rate is lower than with stimulated cycles where multiple follicles are available for aspiration

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<sup>54</sup> *Suprsnote 53.*

<sup>55</sup> *Supranote 53 at pg. 74.*

<sup>56</sup> Warren Freedman, *Legal Issues in Biotechnology and Human Reproduction 4* (1<sup>st</sup> edition 1991).

<sup>57</sup> *ibid*

IVF is the foundation for a number of other techniques making possible other manipulations, such as pre-implantation diagnosis of embryo for genetic disorders and sex selection. Recent, advances in freezing and storage of sperm and ova have made different variations on the IVF procedure possible. With these procedures the implantation rate is 40- 50 per cent higher than with traditional IVF in a single cycle. The IVF technique does not cure infertility. It simply assists in producing offspring technically, in spite of existing sterility.<sup>58</sup>

Till now, there is neither health risks found in women through the use of this technique nor any to children born out of it. Though, there is large number of children born through this method. In adopting such methods what is remain unaccounted is the mental trauma that women will go through during the visit, basal body temperature sometimes, collecting urine, taking fertility drugs through injections and pills, and several times visits to the IVF centres for the various interventions that are a part of the total IVF procedure.<sup>59</sup>

Some of the health risks associated with IVF are: hyperstimulation syndrome, spontaneous abortion or miscarriage, ectopic pregnancy, multiple births, difficult labour and caesareans, premature births, low weight at birth, pre-natal and neo-natal mortality, and genetic disorders/defects. How much women is informed about the IVF is also an important issue of concern.<sup>60</sup>

### **2.2.7. Embryo Transfer:**

Embryo Transfer is another modern reproductive technique which delineates the transfer of the fertilized ovum from its extracorporeal fertilization into the uterine cavity. An embryo is the product of conception from the moment of fertilization to the end of the eighth week thereafter. An artificial embryonation describes the process whereby the couple utilize a fertile woman who agrees to be inseminated with the man's sperm, four or five days after fertilization, the physician flushes out the embryo

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<sup>58</sup> Jyotsna Agnihotri Gupta, *New Reproductive Technologies, Women's Health and Autonomy* 348 (1<sup>st</sup> Edition 2000).

<sup>59</sup> *ibid* at pg. 350

<sup>60</sup> *ibid*

and implants it into the wife who will then carry the baby to term. Embryo adoption, unlike egg adoption or artificial insemination, refers to a situation where the embryo has genes from neither parent, if a woman has an ovarian or tubal problem and the husband is sterile, another woman is voluntarily inseminated by the sperm of a donor and once fertilized the embryo is flushed out after five days and implanted into the wife for normal maturation and birth.<sup>61</sup>

This method availed a woman with the experience of pregnancy and child birth with the help of embryo transfer. A baby may be genetically of woman's husband although she has no contribution of egg. It is important to be careful while selecting ovum donor, so it is essential to conduct tests for determination of diseases and chromosomal defects of the donor.<sup>62</sup>

The main advantage of this method is that it helps when a woman's ovaries or fallopian tube fails or when a genetic disorder or disease would otherwise be passed to the embryo.<sup>63</sup> The probable disadvantage is that the method is so costly that everybody cannot afford it. It also challenges the idea of biological motherhood. In India, blood bond is really vital for marriage, other rituals and property transfer. This method will raise the complex issue of parentage.

The Embryo transfer rate is higher than that of IVF method with or without donated eggs. The main advantage is that it gives woman the same usual experience of pregnancy and child birth. There are, however, some disadvantages also such as tubal pregnancy in the recipient and a retained uterine pregnancy in the donor.

#### **2.2.8. Egg and Sperm Donation:**

Sometimes, infertile couple cannot get benefit from In-vitro fertilization. In some cases, infertility cannot be treated while using the eggs and sperm of the infertile couple. The sperm or the eggs may not be viable or are not being produced. In such cases, egg and sperm donation is the answer. Here, either donor gametes can be used to

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<sup>61</sup> Warren Freedman, *Legal Issues in Biotechnology and Human Reproduction* 5 (1<sup>st</sup> Edition 1991).

<sup>62</sup> *ibid*

<sup>63</sup> *ibid*

produce the embryo or embryo is implanted into the uterus of a woman. At times, woman may be unable to produce healthy eggs on their own, than egg donor can be used. The eggs, thus, fertilized by IVF procedure is than donated to an infertile woman who than can have the eggs inseminated with the sperm of a fertile male.<sup>64</sup>

Sperm donation is common from many years with very little controversy as it has no side effects/ negative effects on the donor. Egg donation is also becoming popular but with strong controversy as egg harvesting can be a dangerous procedure. It involves non-necessary surgery and the drugs used to stimulate the ovaries to overproduce mature eggs have not been tested extensively to determine long term effects on women who have taken them. There are concerns that these drugs can lead to higher risk of ovarian cancer. There is also risk of endangering the fertility of the donor by egg donation.<sup>65</sup>

There are only few sperm banks in India. WHO guidelines do not support the use of fresh semen, as it leads to anxieties relating to sexually transmitted diseases including HIV/AIDS. The main problem is to ensure a regular supply of liquid nitrogen (tank has to be replaced every 3-4 days) without which the extremely low temperature at which the semen has to be stored cannot be maintained. In 1974, when sperm bank was opened there was controversy about it. But due to high demand in recent times, many sperm banks have grown up.<sup>66</sup>

Donors are generally discouraged by the long series of laboratory investigations that need to be performed before a donated sample can be declared safe for use. There are tests conducted of donor before taking semen/egg in donation which include tests regarding sexually transmitted diseases(including HIV/AIDS), hepatitis, blood group, genetic disorders, as well as IQ levels (many times) imposed by American Fertility Association. The height, weight and complexion of donor are also kept in record. There

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<sup>64</sup> . Samson O. Koyonda "Assisted Reproductive Technologies in Nigeria:Placing the Law above Medical Technology" 43:1 Journal of Indian Law Institute 74 (2001).

<sup>65</sup> Jyotsna Agnihotri Gupta, *New Reproductive Technologies, Women's Health and Autonomy* 359 (1<sup>st</sup> Edition 2000).

<sup>66</sup> *ibid*

is also International standard imposed on donor that only those having normal two children should be allowed as donor.<sup>67</sup>

However, these norms are not followed by all the medical laboratories with honesty as they are engage in making profit out of it. When a woman comes with a complaint of being unable to conceive, the semen of her husband is also taken into consideration. Another important point is many gynecologists believe that the success rate with fresh sperm is higher than of the frozen one.<sup>68</sup>

### **2.2.9. Surrogacy:**

In surrogacy, there is an arrangement where a woman agrees to bear a child for a couple or for a single person. A woman is either artificially inseminated with the sperm of the commissioning man (or a donor) or she is implanted with the embryo produced in vitro from the gametes of one or both of the commissioning parents (or from donated gametes)<sup>69</sup>. Very rarely surrogacy can be arranged through sexual intercourse.

Basically, the surrogate mother conceives and carries the child for nine months, gives birth and after that releases her parental rights, giving up the child to the couple. Surrogacy can be adopted for various reasons, common being infertility of the woman. There are other reasons also such as, habitually miscarry or for whom the pregnancy would be dangerous or those likely to transfer an undesirable hereditary disorder in an ordinary pregnancy.<sup>70</sup>

*Surrogacy is also of various types:*

#### **i) Total surrogacy:**

Here, woman bears a child that has been formed from the gametes of another woman and man and implanted into her body through In-Vitro Fertilization.

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<sup>67</sup> Jyotsna Agnihotri Gupta, *New Reproductive Technologies, Women's Health and Autonomy* 359 (1<sup>st</sup> Edition 2000).

<sup>68</sup> *ibid*

<sup>69</sup> Commissioning parent refer to describe the person or persons for whom the child is to be borne.

<sup>70</sup> Radika Kollusu and GitanjaliLakhotia "Surrogacy: Legal and Social Issues" 5 *Law and Medicine* 278(1999)

The birth mother is not genetically related to the child. It is also known as gestational surrogacy where the carrier has just carried the child and the child is genetically related to both intended parents.

**ii) *Partial/ Genetal Surrogacy:***

When the birth mother contributes the ovum and the sperm is introduced by artificial insemination, such a method is called as partial or genital surrogacy. Here, atleast child is biologically related to the mother and birth mother is a biological parent.

**iii) *Commercial Surrogacy:***

In such cases, there is financial arrangement for the birth mother and in place of that she will surrender her child. It is a business like transaction where a fee is charged for the incubation service<sup>71</sup>.

**iv) *Altruistic surrogacy:***

It is the term used to describe the situation where there is no formal contract or any payment or fee to the 'birth mother'<sup>72</sup>. It is usually an arrangement between very close friends or relatives.

Though, surrogacy is practiced in India but it is still in its formative stage. Some infertility specialists are hesitant to do commercial surrogacy yet, they do buy ova. There is argument that the body of the surrogate mother is simply used as an incubator by the commissioning couple. There is also possibility that the institutional growth of surrogacy may promote an undesirable means of family making, like through single unmarried woman, lesbian or gay.

Surrogacy has posed many legal questions and is full of controversy. But even than in case of surrogacy the child is atleast biologically related to the father. In many countries, surrogacy is not allowed. There in no clear or visible law on the subject matter, including India. No doubt, surrogate arrangement has brought big relief to the childless couples; the arrangement has given them happiness of having their own child. But there are issues like commercialization of birth, renting of womb, women's rights, baby selling etc. Many critics call this process as unnatural and therefore ethically wrong.

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<sup>71</sup> *Supranote 70.*

<sup>72</sup> Birth Mother means a woman who carries the child and gives birth to it, i.e, surrogate mother.

### 2.2.10. Human Cloning:

The term 'cloning' has been derived from the Greek term *Klon*, meaning 'twig' which means the taking of a cutting as in plant breeding but it also used to describe a process known as nuclear transfer of genetically identical animals. Nuclear transfer involves removing the chromosomes from an unfertilized egg and replacing them with a nucleus from a donor cell. The transferred nucleus determines all the characteristic of the resulting offspring; a clone will resemble its parents.<sup>73</sup>

Clone is an organism that has the 'same genetic pattern as another organism. Such unique technique of procuring a genetically identical duplicate of an organism is called as cloning. Cloning has been defined as 'copying and propagation without altering the genome by the Human Genetics Advisory Commission (HGAC) and Human Fertilization and Embryology Authority(HFEA).If the genome-complete genetic identity of any individual is cloned or copied a genetically identical individual is created.<sup>74</sup>

Cloning would be relief to those couples where both are infertile due to genetic insufficiency. In such cases where the male partner lacks gametes, the couple might prefer to opt for cloning rather than sperm donation. If the husband were the source of the DNA and the wife provided the egg that received the nuclear transfer and then gestated the foetus, they would have a child biologically related to each other and would not rely on anyone's gamete or embryo donation.

The human cloning technology could be helpful for cell and tissue therapy and that it helps in organ transplant. A child who needed an organ or tissue transplant might lack a medically suited donor. As *Robertson* points out, in such situation, couples often conceived a child to have the correct tissue type to serve, for e.g., as a bone marrow donor for an older sibling. If the child's disease was not genetic, a couple might prefer to transplant to the affected child to be sure that the tissue would match.

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<sup>73</sup> Naveen Sankaran "*Human Cloning-A Paradox's Box*" 5 *Law and Medicine* 255 (1999).

<sup>74</sup> S.K.Verma "*Cloning: Controversies and Law*" 21 *Indian Journal of Criminology and Criminalistics* 197 (2000).

Another important use of human cloning technology is that the couple who are at high risk of having offspring with a genetic disease can opt for such methods. The couples in such situation must choose whether to risk the birth of an affected child, to undergo pre-natal or pre-implantation diagnosis and abortion or the discarding of embryos, to accept gamete donation to seek adoption, or to remain childless. If cloning can be done, than couples will prefer to clone one of themselves or another family member.<sup>75</sup>

Cloning is also useful in such circumstances where child died or there is dying child, so that to have that child live on in some closely related form, which can be done by obtaining sufficient numbers of embryos for transfer to create the resemblance clone.

There has been strong criticism on human cloning. The creation of clones solely for the purpose of providing spare parts (i.e. organ transplantation) would be degrading human values and as a resemblance to dying child as if treating human lives as an object.

#### **2.2.11. Sterilization Operation:**

*Laparoscopic tubectomy* is the commonly employed mode of female sterilization. Here, the fallopian tubes are blocked either by a plastic ring devised by fallopian or by a filshie clip. Two rings are loaded one after the other on the applicator. The ring loaded applicator approaches one side of the tube and grasps the utero-tubal junction. A loop of the tube is lifted up, drawn into the cylinder of the applicator and the ring is slipped into the base of the loop. After this, the procedure is repeated on the other tube.<sup>76</sup>

In rural areas, camps are organized in rural areas to provide sterilization free of costs. In such camps, a mobile team of medical personnel comes to do such operations.

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<sup>75</sup> Naveen Sankaran "*Human Cloning-A Paradox's Box*" 5 Law and Medicine 257 (1999).

<sup>76</sup> Surya Malik "*Failure of Sterilization Operation-Whether Medical Negligence*" 292 AIR Journal (2004).

These people themselves works under pressure as they have to achieve certain targets. In these camps a single surgeon performs 300-500 laparoscopies in 10 hours per day. In such a situation the attitude of medical personnel would be callous. There will be no follow up care in such mass programme which only provides the facility for sterilization and move on. In such areas there are no hospitals and clinics where women can go in case of any problem later on. The situation of government hospitals and family welfare clinics is no better.<sup>77</sup>

There are number of instances of failure of sterilization operation where woman again become pregnant and gave birth to the child. In such cases, aggrieved party suffers physically as well as mentally. The Court has started granting compensation to the parents/patient for bringing up those unwanted child which is the result of failure of sterilization operation. However, it is evident that no method of female sterilization is absolutely reliable.<sup>78</sup>

*There are common causes of such failure which are as follows:-*

- i) Slipping or tearing of the ring.
- ii) Recanalisation of the cut ends of the fallopian tubes by the natural process of union.
- iii) Tube- peritoneal fistula formation.
- iv) Inappropriate application of the ring due to deep adhesion among the nearby structures, when identification of the tube becomes difficult.
- v) Diseased condition of the lower abdomen such as PID endometriosis.

*Justice P.K. Sarkar* has rightly remarks “*the failure of sterilization is the nature’s overpower on human effort to maintain the nature’s rule of progeny.*”<sup>79</sup> In a majority of cases, it was found that there are sometimes natural and unavoidable

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<sup>77</sup> Jyotsna Agnihotri Gupta, *New Reproductive Technologies, Women’s Health and Autonomy* 277 (1<sup>st</sup> Edition 2000).

<sup>78</sup> *ibid*

<sup>79</sup> *Archana Paul v. State of Tripura* (AIR 2004 Gau 7).

circumstances that can lead to a failure of the operation, though done with due care and caution.

In such cases, it is very difficult to prove medical negligence of the concerned doctor. In all other cases, proved failure rate is a ready defense for the medical practitioner. The doctor/ hospital have been able to avoid its liability of payment of compensation/ damages for birth of an unwanted child. Taking into consideration such cases, *the doctor should be held liable if*<sup>80</sup>:

- i) Sterilization operation is incomplete;
- ii) The doctor fails to inform the patient that:
  - Even though the operation was successful there might be a conception (since person has right to decide if they wish to undergo this treatment where pain, inconvenience and at times money are vital factors).
  - In case where after sterilization operation if woman misses her menstruation, she has to go for medical check up at earliest possible time.
- iii) Even after medical check-up the doctor fails to detect the conception at a time when pregnancy could be medically terminated.

This shows that the liability of the doctors does not end with the operation. The liability begins from the time when a couple comes to the hospital and is informed about the procedure and continues till a woman concerned reaches her menopause.<sup>81</sup>

It is important on the part of the practitioner/ hospital to impart all the necessary information regarding sterilization as well as its failure. In USA and the UK, it is mandatory for the doctor to inform the patient about the procedure, alternative and the

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<sup>80</sup> *State of Haryana v. Smt. Santra* (AIR 2000 SC 1888).

<sup>81</sup> Surya Malik "*Failure of Sterilization Operation-Whether Medical Negligence*" AIR Journal 295 (2004).

success rate. However, in India, there is no trend of informed consent of the patient<sup>82</sup>. It is because of the lack of awareness among people regarding their rights and mostly because of the illiteracy in a country.

Women go for sterilization operation for different purposes, some go on their own, and others may be prevented from going there by their husband or in-laws. For some, and sterilization is for prevention of unwanted pregnancy where termination is conducted on the condition of consent for sterilization by women. For some sterilization is just to have incentive offered by the government in different states and only for very few it is for the fertility control.<sup>83</sup>

### **2.3. Overview:**

A civilized society always looks after the health of its citizens. It is the responsibility of the government to provide health services to the public. It includes providing health services to the pregnant women also. However, there are inadequate health services at government hospitals and apart from this, many times, many women die due to the wrong treatment and negligence on the part of the medical professionals.

The present human civilization is flourishing largely because of the dominant role played by technology. In the last 20<sup>th</sup> century, scientists, doctors, and technologists have come together to understand life processes. The large scale research is going on both in private or public sectors world wide. The researches in biotechnology have contributed to the development of reproductive technologies also benefiting the people but at the same time bringing new challenges before the society.

The evidence from demographic research on the world population estimates that between 60 million and 100 million girls and women are missing. They are missing as a combined result of female infanticide and mistreatment that leads to death. The Census

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<sup>82</sup> *Supranote 81.*

<sup>83</sup> *Supranote 78 at pg. 278.*

data shows that female population deficit has risen from 3 million in 1901 to 36 million in 2001 (table below).<sup>84</sup>

Table1

<b>Population of India(in millions)</b>			
<b>Census Year</b>	<b>Population</b>	<b>Male</b>	<b>Female</b>
1901	238	121	117
1951	361	186	176
1961	439	226	213
1971	548	284	264
1981	683	253	330
1991	846	439	407
2001	1,028	532	496

The Census 2001 reveals that India's sex ratio was 933 females per 1000 males, an increase from 927 recorded in the year 1901. The child sex ratio is the sex ratio for the 0-6 years age group, it is the medium through which attitudes and social responses towards the girl child is scrutinized.<sup>85</sup>

Ironically, a sharp decline in the sex ratio demands the political, legal and administrative sectors to address the issue of missing girls into action. The concern has started just from the publication of 2001 census and seriously country cannot wait for

<sup>84</sup> J.K.Banthia "Declining sex ratio:a national emergency" in Shruti Pandey, Abhijit Das, Shravanti Reddy, and Binamrata Rani (eds.) *Coercion versus Empowerment* 40 (2006).

<sup>85</sup> *ibid* at pg. 41

another 2011 census to find out whether the sex ratio has improved or not. There is a need for the active campaign of “save the girl child” slogan from governmental and non-governmental agencies to balance sex ratio.<sup>86</sup>

From the Census it was also found that economic development does not necessarily indicate an increase in women’s status. Moreover, violence has occurred as a major cause of death for women in the reproductive age group and severe neglect, maternal mortality and undernourishment are the main hurdles for their well-being.

Even Family Planning Programmes has been implemented in such a manner that has led to numerous human rights violations for women. Like, in many parts of India, the average age of sterilisation for women is 20-21 years. This is one of the gross violations of women’s bodies as it makes them vulnerable to violence and desertion within their households if a child dies at some later days, especially if it is a male child.

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Sometimes women are verbally abused and even slapped, at Public Health Centres (PHCs) if they scream or shout while in labour. There are instances where women are forced to sign consent forms for tubectomies while they are in labour pain.<sup>88</sup>

The Medical Termination of Pregnancy Act, 1971 has made the abortion legal and free but in reality in many government hospitals abortion is often offered on her acceptance to contraceptive methods chosen by her providers after abortion. For this reason women are compelled to go to the private sector at their own expense or resort to illegal and potentially unsafe abortions.<sup>89</sup>

Apart from this, women’s reproductive health has been deteriorated because of the government’s two-child norm which is enforced through a mechanism of incentives

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<sup>86</sup> *Supranote* 84 at pg.41.

<sup>87</sup> Manisha Gupte “Delining sex ratio, the Two –Child Norm, and Women’s status” in Shruti Pandey, Abhijit Das, Shravanti Reddy, and Binamrata Rani (eds.) *Coercion versus Empowerment* 52 (2006).

<sup>88</sup> *ibid*

<sup>89</sup> *ibid* at pg.53.

and disincentives that are anti-women. Actually, women are the main targets of this campaign. The public health service perception of women is as either mothers or potential mothers. They easily lose interest in a woman's health and well being once she opted for tubectomy. This careless and instrumentalist approach adversely affects women's health and neglects their needs.<sup>90</sup>

Reproductive health problems such as cervical prolapses, cancer of the reproductive system, Reproductive Tract Infections (RTIs) and Sexually Transmitted Infections (STIs) are not treated at PHCs centre or rural hospitals; even though it is well known that if RTIs and STIs are not treated at time it will cause HIV/AIDS. Rather than making efforts to fully equip a health services, the government is moving towards opposite direction. The proof is withdrawal of government services in rural areas, promotion of private sector of health services and reduction in health budgets are rather few evidences of government's action.<sup>91</sup> Health service is the fundamental right of citizen and it has to be provided by the government as their primary duty.

There has been invasion of more and more new types of contraceptives but all targeted towards women, and even the target population control measures are still focused on women. At one hand, government is imposing two-child norm on the other hand families still want them to produce at least two sons. For this sex determination test has become the logical answer to this situation where couples are pressurize to have only one or two children.<sup>92</sup> It is no wrong to say that ideology of population control has now become a killing machine for women.

The *World Health Organization* and *UNICEF* estimate that more than half a million women die per year due to pregnancy related problems, most in developing countries. Worldwide woman face a 1 in 75 times risk of dying due to maternity- related causes.

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<sup>90</sup> Manisha Gupte "Delining sex ratio, the Two -Child Norm, and Women's status" in Shruti Pandey, Abhijit Das, Shravanti Reddy, and Binamrata Rani (eds) *Coercion versus Empowerment* 53 (2006).

<sup>91</sup> *ibid* at pg. 54.

<sup>92</sup> *ibid*

This risk varies from 1 in 4.085 in industrialized countries to 1 in 6 in the developed countries of the world.<sup>93</sup>

In India also, the ratio of maternal mortality rate is very high. The available facilities regarding reproductive health care is not so sound. Some of the major problems that need attention are as follows. There is a need for:

- a) Accessibility to health care.
- b) Pre-natal care and post natal care.
- c) Nutritional care during feeding period.
- d) To prohibit experiments without consent.
- e) To prohibit violence against women including unwanted or forced sex.
- f) To prohibit violence affecting reproduction and child bearing, and
- g) To reform laws and practices that discriminate against women.

The ability of women to control the number, spacing and timing of their children is a fundamental right. Universal access to modern methods of reproductive technologies such as contraceptive, artificial insemination, abortion etc provides women control over their fertility. The right to health which is an essential right to realize all other rights of an individual also includes reproductive rights. It is the pre-condition to realize and enjoy human rights and dignity.

The right to health has undergone tremendous hypothetical study and within the framework of human rights instruments it has been defined right to health as “enjoyment of the highest attainable standard of health is one of the fundamental right of every human being”.<sup>94</sup>

Today, everyone has started family planning programmes. Presently, more than half of the world’s married couples are family planning users. The contraceptive technology in its simplest form has reached even in the remote area. Most of the people

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<sup>93</sup> [www.reproductiverights.org](http://www.reproductiverights.org)

<sup>94</sup> Rabindranath Jhunjhunwala “*AIDS and Human Rights: Time for an Empowered Response*” 5 Law and Medicine 39-101 (1999).

know about family planning and many people know some family planning methods. Couples now can choose from a variety of range of modern methods.<sup>95</sup> Here, the main line to be drawn is that the woman must have freedom to make choice in taking decision to adopt any family planning measures. It should not be enforced by any one either husband or family members.

There is no second thought that family members routinely make important decisions relating to women's reproductive health and rights such as regarding fertility, family planning, childbirth and abortion: A women's ability to make independent decisions in these area is further constrained by restrictive population policies such as two child norm of the government which aim to dictate the number of children women can and cannot have.<sup>96</sup>

There is a necessity to protect women from coercion and discrimination when seeking such reproductive health services. Their right to take decision on reproductive choice, child bearing and access to infertility treatment should be secured. Their right to take decision regarding their own body is yet to be achieved.

In many traditional societies infertility is often taken to be caused by a curse or evil spirits. Male fertility is less known due to the prevalence of the customs in many social orders. Apart from that spouses feel disappointed at being unable to conceive, they feel guilty towards their partners, once he/she is found to be infertile. Today, with assisted reproductive technologies infertility can be cured.

At this point, it is necessary to study the impact of current reproductive technologies. It is true that the reproductive technologies have many advantages but it cannot be denied that it has its disadvantages also. How much these technologies affect the life of women is crucial to understand.

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<sup>95</sup> Nandita Das, *Law and Medicine* 128 (1<sup>st</sup> Edition 2007).

<sup>96</sup> Pallavi Gupta "Rajasthan" in Shruti Pandey, Abhijit Das, Shravanti Reddy, Binamrata Rani (eds) *Coercion versus Empowerment* 103 (2006).

Till mid- 1980s infertility treatment consisted of diagnosing the reason for infertility rather than finding way out. Than the corrective way become popular where those unable to conceive by reason of infertility of any of the partner was given the option of adopting children or accepting childlessness as their fate. Nowadays, a whole range of options exist, from artificial insemination by husband or donor to in vitro fertilization with variety of forms. With the developments of reproductive technologies, infertile couples are offered with many sophisticated techniques. Although, the main focus the government policies are on the use of reproductive technologies has been on the objective of population control. But at the same time various private clinics has been opened with the facility to provide treatment for infertility. From some time now, it is no wrong to say that assisted reproduction is expanding in India.<sup>97</sup>

There are many reasons for infertility and one such reason is late motherhood. There is a need to pay attention on the increasing phenomenon on late motherhood. Women delayed their pregnancies at the most fertile stage of their life because of which there has been increasing trend in the use of In-Vitro Fertilization or other reproductive technologies. The study shows that in 1970, 63 percent women became mothers for the first time in the age of 25 years. In 1990, this has gone down to 31 per cent; 21 per cent be above 30-35 years of age at the birth of their first child. There are incidents where women with higher education postponed pregnancy till they establish a career and later, realize they want to have children before it is too late.<sup>98</sup>

No doubt, technology such as- In-Vitro Fertilization (IVF) is proliferating very fast which actually was developed to cure women with blocked fallopian tubes who were unable to conceive naturally. Thereafter the use of IVF has been extended to cover husband/partner's infertility and sub-fertility. A considerable number of women on IVF programme are fertile but they are there due to husband's infertility or sub-fertility. The cost involved in the IVF is very high. The high costs have raised questions regarding

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<sup>97</sup> Jyotsna Agnihotri Gupta, *New Reproductive Technologies, Women's Health and Autonomy* 339 (1<sup>st</sup> Edition 2000).

<sup>98</sup> *ibid.*

the benefit of IVF and the definition of IVF children as luxury items available only to the rich people.<sup>99</sup>

Another core of concern is that the subordinate position of woman in society is the root cause for a rapidly increasing rate of infection (relating to reproduction) among them. Women and girls are often unable to discuss safer sex or to avoid the HIV-related consequences of the sexual practices of their husbands due to social and cultural attitude and economic condition. There is no protection of sexual and reproductive rights of women which includes the rights of women to decide freely and responsibly on matters relating to their sexual health and reproduction.

Women are not empowered to quit relationship that threatens them with HIV infection if their spouses are infected with HIV/AIDS.<sup>100</sup> There is lack of accessibility to accurate information regarding risk factor of pre-natal transmission of disease, voluntary and informed choices about reproduction etc. Equal rights for women is lacking within the family to confer safe sex with their husbands or to leave the relationship if they cannot assert their rights. The socio- economic fabric has placed women as the suppressed class and incidentally, the HIV epidemic has made them the unfortunate victims of the sexual behaviors of the spouse which is one of the instances of curtailment of reproductive rights.

The shift of emphasis to sterilize women rather than men is likely to have serious effects on the health of women. Very few women go for the sterilization on their own choice; others may be forced by their husband. They are often pressured or coerced by the family to undergo sterilization because of the monetary or other incentives that government offered. Though, it may be difficult to ascertain whether sterilization is voluntary or coercive. It seems that the sterilization is more concerned with population

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<sup>99</sup> *Supranote 97* at pg.344.

<sup>100</sup> Rabindranath Jhunjhunwala "AIDS and Human Rights: Time for an Empowered Response 5 *Law and Medicine* 65 (1999).

control than with reproductive rights which guarantee individuals with control over their fertility.<sup>101</sup>

When women go to the Mother and Child Health (MCH) (the Family planning programme) they are pressurized to adopt an IUD or sterilization. This has sometimes discouraged women from using MCH facilities. Another point is MCH programme is shown as meant for married women only and thus not assessable to unmarried women. This is contrary to reality where 46.7 per cent of unmarried girls in the study were found to have had sexual intercourse. Though, in India, pre marital and extramarital sex is prohibited by cultural and religious beliefs.<sup>102</sup>

Oral pills are not regularly available in rural areas. Women have little knowledge about these pills. Sometimes, they regarded it as abortifacient and take them when they missed a period, or only just before sexual intercourse. In some case, husband used to keep the pill and give them only when they think that their wives need them. Various family planning programme shows that there is an unmet need for contraceptives.<sup>103</sup>

The birth preventive measures allow the people to exert greater control over their fertility. The reproductive rights enable people to have control over their fertility without compromising their integrity, health and well-being. A development of new contraceptives is in the interest of women only when women themselves will exercise control over its use. Thus, the use of reproductive techniques has direct effect on their daily lives and their social relationships.

So, when popularizing methods like contraceptive; concern has to be on the control over fertility and sexuality by women; safe and effective method of contraception and information and counseling that helps to enhance their well-being. There is an increase in the health problems of women due to the use of certain contraceptive methods.

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<sup>101</sup> Jyotsna Agnihotri Gupta, *New Reproductive Technologies, Women's Health and Autonomy* 280 (1<sup>st</sup> Edition 2000).

<sup>102</sup> *ibid.*

<sup>103</sup> *ibid.*

Reproductive health and rights require that there has to be informed choice when taking decision regarding use or continue or discontinue of any methods of contraceptive. Choice should be based on sufficient information. The doctors should provide all the methods available, how to use them, their adverse effects, beneficial effects etc, and than allow the individual to make decision.<sup>104</sup>

Henceforth, after adopting any methods there have to be facility for follow up care so that in case of any complication women can go for medical check-up. Similarly, more attention has to be given to men to use barrier methods as a partner themselves rather than forcing women to use contraceptive. To decline individual access to new reproductive technologies is to frustrate the reproductive freedom. But it is also necessary to deal with the issues of reproductive technologies.

Women's choice of reproductive technologies depends upon the economic, social, cultural and political situation in which they are living. Even if freedom of choice is given to them, can they be able to make conscious choice. Choice implies awareness of possible consequences, and a decision based on that. What measures state will take to make women aware of the methods of contraceptive? On that basis only one can say that reproductive rights have been fully enjoyed by women or not.<sup>105</sup>

WHO survey report shows the incidence of infertility in different countries of the world. It shows that in India, about 10 per cent of couples suffer from problem of infertility. Nearly 16 million couples or 32 million individuals in the age group of 18-35 years age groups are afflicted by the problem, making infertility one of the most widespread problems in the country.<sup>106</sup>

There are traditional practices and methods to prevent pregnancy such as certain traditional norms and cultural practices, like prohibition of pre-marital sex, late marriage, post-partum taboos- for example, avoidance of sexual relations for a certain

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<sup>104</sup> *Supranote* 101at pg.326 .

<sup>105</sup> Jyotsna Agnihotri Gupta, *New Reproductive Technologies, Women's Health and Autonomy* 326 (1<sup>st</sup> Edition 2000).

<sup>106</sup> *ibid* at pg. 339.

period after the birth of a child, or on certain days (either religious days, or auspicious days), and a long period of breast feeding are the most commonly practiced preventive measures.<sup>107</sup>

It is also necessary that women should learn how to tell when the fertile time of her menstrual cycle starts and when it ends. With the help of this method, the couple can avoid pregnancy. They can abstain sex or they can use as a barrier method or withdrawal during the fertile time. If used properly this method can be more effective and without adverse effects on the health of women. But there has to be cooperation between sex partners and full commitment from the man. This is commonly practiced during fever, vaginal infection, after childbirth or while breastfeeding.<sup>108</sup>

“Fertility awareness” means that a woman is aware of the fertile time of her menstrual cycle i.e. the time when she can become pregnant. The methods of fertility awareness includes- calendar calculation, cervical secretions, basal body temperature and the feel of the cervix. The couple can avoid pregnancy by changing their sexual behaviour during fertile days. Abstain from sex completely during the fertile time is also called as Natural Family Planning. Normally, unprotected sex should be avoided from 8<sup>th</sup> to 21<sup>st</sup> days of the woman’s menstrual cycles i.e. 14 days. This method recorded a higher failure rate.<sup>109</sup>

Another most important feature of reproductive health is that the number of adolescent pregnancies is rising constantly. At times these pregnancies are at risk. Many of these are undesired and occur in unmarried adolescents. Generally, they adopt an illegal and unsafe abortion which means that abortion is conducted under poor medical conditions and by untrained persons. These illegal abortions mostly cause health hazards and sometimes endanger life.<sup>110</sup>

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<sup>107</sup> *Supranote* 105 at pg.343.

<sup>108</sup> Nandita Das, *Law and Medicine* 138 (1<sup>st</sup> Edition 2007).

<sup>109</sup> *ibid*

<sup>110</sup> *ibid*

However, such incidents can be prevented among the young people through educational programmes. There is large number of illiterate and school drop-outs in India. In conservative families sex is not discussed nor is any sex education given to the young people. Adolescents are not aware of family planning methods. Due to unprotected sex amongst adolescents, there are many times undesired pregnancies leading to abortion.<sup>111</sup>

In the growing field of modern reproductive techniques and genetic engineering, it is of interest to note that eggs, sperm, embryo, womb etc acquires patentable subject matter. Obviously these and other patentable subject matter must aid scientific progress with respect to the biological present and future. The loopholes are commercialization of human capacity to reproduce and its ill-effects in the society which can adversely affect the reproductive techniques but the price paid for this progress is the health of woman at risk.

## 2.4. Conclusion

The reproductive technologies, on one hand healed the wounds of infertile couples by giving them the chance to fulfill their desire for a biological child, on the other hand they have opened the possibilities for the state to intrude into the most private life of the people, their intimate experience i.e., sexuality and procreation. The technologies in this area have lead to the possibility of treating reproductive organs as commodities generating body products such as-sperm, egg, ova, womb for rent etc.

The quality of health care has not improved but rather it has become narrowly focused on population control. Women are still conceiving soon after marriage and spacing methods are not utilized to the extent. Women are providing care and support until they deliver the child, Sterilisation has been performed in women at their young age and sometimes forcefully.<sup>112</sup>

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<sup>111</sup> Nandita Das, *Law and Medicine* 138 (1<sup>st</sup> Edition 2007).

<sup>112</sup> G.Francis Raj and Vijay Lakshmi "Andhra Pradesh" in Shruti Pandey, Abhijit Das, Shravanti Reddy, and Binamrata Rani (eds) *Coercion versus Empowerment* 67 (2006).

To the end, Government documents claim that the large number of couples undergoing sterilization operations every year shows that there is a demand for these services. However, it is actually the state that is creating this demand by providing cash and other incentives for such services.<sup>113</sup>

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<sup>113</sup> *Supranote 112.*